Introduction & Aim Of Work

The introduction of contrast enhanced MRI, new imaging sequences and advances in surface coil technology during the 1990_S allowed MRI to emerge as a very promising breast imaging modality ***(Orel S G; 2000).***

Although magnetic resonance imaging (MRI) has demonstrated variable specificity, multiple investigators have reported sensitivity of this modality for the demonstration of invasive breast cancer approaching 100% in several series. The invasive cancers in these studies have predominantly been invasive ductal carcinoma. Both lesion morphology and enhancement kinetics are useful parameters in identifying malignant lesions and several series have suggested that these parameters can individually be strong predictors of malignancy. ***(Elizabeth A Morris &Laura Liberman; 2005).***

In conjunction with ultrasound, physical examination and needle biopsy, x-ray mammography is the current gold standard in clinical practice. However, its lower sensitivity in certain high-risk cases has been some what unsatisfactory. In cases of dense breast parenchyma, following reconstructive surgery or assessing the volumetric extent of lesions, dynamic contrast enhanced-MRI sensitivity is superior. Certain MRI protocols seem to yield higher probability of both higher sensitivity as well as higher specificity. The use of contrast agents, such as gadolinium-diethylenetriaminepentaacetic acid (Gd-DTPA), has demonstrated an

increase in the sensitivity of MRI in certain protocols. ***(Kneesha w PJ; et al, 2003).***

A close follow-up of patients after breast-conserving radiation therapy is necessary because tumor recurrence ranges between 1% and 2% per year . Moreover, early diagnosis of recurrent cancer has an important influence on a patient's outcome. Findings of clinical examination and x-ray mammography may be difficult to interpret because radiation-induced edema or fibrosis may mimic or obscure tumor recurrence. Breast ultrasonography (US) may be problematic as well, because diffuse acoustic shadowing caused by scar tissue may also simulate breast cancer. Breast magnetic resonance (MR) imaging has been shown to be highly specific in the differentiation of fibrosis versus tumor recurrence; non-enhancement in this situation has a high negative predictive value for tumor recurrence. ***(Nuschin Morakkabati et al; 2003).***

MRI was clearly superior to physical examination and other imaging techniques for evaluation of post chemotherapy. It is less limited by the presence of dense glandular tissue especially following therapy. Background breast glandular signal is reduced following chemotherapy, possibly 2ry to a direct suppressive effect of the chemotherapeutic agents on physiologic breast activity. This potentially has an effect of making areas of tumor enhancement stand out more than usual especially if they fail to respond to therapy. ***(Weatherall PT etal; 2001).***